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|-----------------|-------------|----------------------|---------------------|------------------|
| 09/809,440      | 03/15/2001  | Gareth Hougham       |                     | 4926             |

7590 11/16/2005  
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| EXAMINER |
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HUSON, MONICA A

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| ART UNIT | PAPER NUMBER |
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1732

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/809,440

**Applicant(s)**

HOUGHAM, GARETH

**Examiner**

Monica A. Huson

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

This office action is in response to the RCE filed 14 October 2005.

### *Claim Objections*

Claim 1 is objected to because of the following informalities: The word “monomeric” is misspelled in line 6. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 rejected under 35 U.S.C. 112, second paragraph, as containing an improper alternative limitation. According to MPEP § 2173.05 (h), alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. A Markush group is an acceptable form of alternative expression and must contain the phrase “selected from the group consisting of A, B and C.” See *Ex parte Markush*, 1925 C.D. 126 (Comm’r Pat. 1925). Claim 1 contains the incorrect alternative expression “moieties selected from the group consisting of hexamethylcyclotrisiloxane, octamethylcyclotrisiloxane, ..., divinyltetramethyldisiloxane, tetramethyldisiloxane”. In order to correct the claim, the

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examiner suggests rewording the claim as follows: "moieties selected from the group consisting of hexamethylcyclotrisiloxane, octamethylcyclotrisiloxane, ..., divinyltetramethyldisiloxane, and tetramethyldisiloxane".

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. (U.S. Patent 6,511,615), in view of Sangokoya (U.S. Patent 5,731,253), further in view of Kumar et al. (U.S. Patent 5,512,131). Regarding Claim 1, Dawes et al., hereafter "Dawes," shows that it is known to carry out a method of making a stamp for microcontact printing, the method substantially eliminating pattern distortion of said article formed as a result of the method (Column 1, lines 56-67; Column 19, lines 48-50), consisting essentially of inserting a blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix into an enclosed mold (Abstract; Column 4, lines 30-32; Column 10, lines 55-61); retaining said blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix in said enclosed mold to maintain a precise dimension during a two phase curing process comprising substantially curing and crosslinking said blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix in said enclosed mold for a period of time ranging from in excess of one hour to about one week, at substantially constant temperature to form an article, said constant curing temperature also being the end-use

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temperature of a stamp to be formed from said article formed from said blend of polysiloxane oligomer-siloxane monomer elastomer reactive mix, wherein the pattern geometry of said article so-formed is fixed at end-use thermal conditions and is not distorted (Column 4, lines 61-67; Column 16, lines 19-21; Column 19, lines 40-41); followed by a subsequent cure of said substantially cured blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix in said enclosed mold at a temperature of from between about 50°C and 120°C, which curing temperature is higher than said substantial end-use temperature of said article formed from said blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix and is sufficient to provide required dimensional integrity for pattern faithfulness and subsequent cure is sufficient to harden said elastomer reactive mix to a desired elastic modulus (Column 16, lines 31-32; Column 19, lines 41-42, 48-50), said two phase curing in an enclosed mold preventing permanent shrinkage and maintaining precise dimensions of said stamp formed from said siloxane polymeric elastomer reactive mix (Column 18, lines 17-18; Column 19, lines 48-50); removing said cured article from said blend of polysiloxane oligomer-siloxane monomer elastomer reactive-mix from the enclosed mold after completion of said two phase curing process and forming a microcontact printing stamp therefrom, said microcontact printing stamp, as a result of the two phase curing steps in said enclosed mold having minimal pattern distortion, being a flexible and soft elastomeric article (Column 18, lines 30-32). Muller shows the process as claimed as discussed above, but does not show the specifically-claimed monomeric moieties. Sangokoya shows that it is known to use a siloxane system that contains moieties of hexamethylcyclotrisiloxane and hexamethyldisiloxane (Column 10, line 31). Sangokoya and Muller are combinable because they are concerned with a similar technical field, namely, that of

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siloxane compounds and their applicability. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Sangokoya's specific siloxane system moiety as the elastomeric reactive material in Muller's molding process in order to produce an article having characteristics of the molded moiety. Muller shows the process as claimed as discussed above, but does not show using a specific siloxane system. Kumar teaches that it is known to use Sylgard<sup>®</sup>, a polydimethylsiloxane widely-known in the art, as the silxane system (Column 8, line 53). Kumar and Muller are combinable because they are concerned with a similar technical field, namely, that of molding processes which use siloxanes as the molding materials. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kumar's Sylgard<sup>®</sup> as the elastomeric reactive system in Muller's molding process in order to create a stamp with characteristics of molded Sylgard<sup>®</sup>.

Regarding Claim 8, Muller shows the process as claimed as discussed in the rejection of Claim 1 above, including a method of manufacturing a microelectronic pattern (Column 1, lines 56-67), meeting applicant's claim.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes, Sangokoya and Kumar, further in view of Domeier et al. (U.S. Patent 6,422,528). Muller shows the process as claimed as discussed in the rejection of Claim 1, but he does not specifically show wiring dimensions of the formed article. Domeier et al., hereafter "Domeier," show that it is known to carry out a method of manufacturing a stamp wherein wiring and other interior features' dimensions contained therein are microscopically small and registration of subsequent layers of such display is within microns over many inches (Column 6, lines 4-12; Column 7, lines 52-67).

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Domeier and Muller are combinable because they are concerned with a similar technical field, namely, that of molding methods which use enclosed molds to form micro-scale articles. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Domeier's dimensions in Muller's process in order to produce an article according to a desired specification.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regard to two-step curing in general:

U.S. Patent 5,264,061 to Juskey et al.

U.S. Patent 6,344,160 to Holtzberg

U.S. Patent 6,243,945 to Fujimoto et al.

U.S. Patent 6,677,407 to Bilgrien et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198.

The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianne can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Monica A Huson  
November 7, 2005



**MICHAEL P. COLAIANNI**  
**SUPERVISORY PATENT EXAMINER**